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Decorative Tapestry. Alexander the Great Hunting. Egypt, 8th to 9th century (?) T.M. 11.18

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PHOTOGRAPHING TEXTILES FOR A MUSEUM

OSMUND LEONARD VARELA

From a photographic standpoint, the textiles in a museum collection may be divided into three categories, depending on how they are stored or mounted. The technique used in photographing a textile will, of course, vary with the category. The three categories, each of which in turn has a number of sub-categories, are as follows:

a. Textiles which have no covering of any kind.

b. Textiles which have a smooth covering, such as glass or plexiglass.

c. Textiles which have a covering with a tendency to buckle, such as cellophane or a similar material.

Before discussing specific photographic techniques for each of these categories, it might be wise to examine very briefly the types of cameras and equipment which will produce the best results at the lowest cost, since cost will be a major consideration in most museums.

Cameras are like automobiles in that different models serve different purposes. Since you could hardly expect a racing car to do the work of a truck, or vice versa, you cannot expect one camera, even with interchangeable lenses, to do the varied work required in recording the world of textiles in photographs.

In our experiments, 35mm cameras were tried and were found inadequate. For record shots, 20 or 36 exposures were too many and the photographs which resulted were in many cases too small to permit close examination of details and necessitated additional close-up exposures.

Somewhat surprisingly, we found that a 2¼ x 2¼″ camera was best for our purposes. The 2¼ x 2¼″ camera is sharp enough to permit 8 x 10″ enlargements to be made without special development or handling, as shown in the illustrations which accompany this paper. The dual-lens camera is not only easy to handle but permits very accurate focusing. If the 2¼ x 2¼″ film is purchased in large quantities, its cost is actually less than that of 35mm film, and additional close-up exposures are not required.

The 2¼ x 2¼″ camera used in the recording of textiles in the majority of the illustrations shown was a Mamiyaflex with a Sekor F 3:5 65mm wide angle lens and a Sekor F 4:5 135mm tel-a-photo lens. This is one of the few cameras in the 2¼ x 2¼″ size which provides for a change in focal length of lenses. The camera has an extension bellows of about 6 inches which allows focusing of objects quite close. In addition, a Porroflex may be put over the ground glass instead of the hood, which will eliminate the reflections created by hood focusing with the nominal dual lens camera.

Before concluding this discussion of equipment, it should be made clear that one very fine 2¼ x 2¼″ camera with a wide-angle lens and a telephoto lens alone will not do the job. When 35mm slide or kodacolor prints were needed, a Retina reflex with a Schneider Xenon F 2—50mm lens plus a wide angle Retina-Curtar F 4—35mm and a Retina-Longar F 4—80mm tel-a-photo lens were used. The museum uses 35mm color for study and lecture purposes only. An old-fashioned cut-film camera with a variety of lenses and a rise-and-fall front is required for many jobs.

Being an old-timer in this business, I still like the old cameras with a rise-and-fall front and a front board which will allow the interchangeable lenses of many focal lengths. In fact, there was no camera on the market in the 4 x 5″ field which would allow a rise and fall for the extreme wide angle lens, so I built one. The front construction with the rise-and-fall is stationary while the focusing is done by movement of rear or ground glass. Both exposures in Figs. 9 and 10, T.M. 71.118 were made with this camera. The lens used was a Schneider Angulon F 6:8—90mm with the rise extended to its capacity. The lens was stopped down to cover the edges of the film. As the textiles could not be moved, and as the camera was mounted on a tripod, the exposure was quite long.

A good exposure meter is invaluable. Readings should be made of high lights and shadows and a compensating exposure used. In addition, lighting and the use of photo floods, screens, bounce lighting, etc., is most important. It has been our experience that for black and white photographs 150 and 300 watt lights in re-

flectors give plenty of light even though the light is a yellowish cast. The lamps burn very much longer than the photo floods and are therefore cheaper to operate. However, for color photographs or slides, photo floods must be used with outside color film. Stands on which the lights are placed should have an extension of at least eight feet with a swivel head to allow the light to be bounced or pointed in any direction. Screens used over the lights will soften the light giving a more evenly lighted photograph but less detail in the weave. Much attention must be given to the placement of lights. Just to place a light source to the upper right or the lower left of the textile is not enough. To guard against having the weave in the textile looking like a row of cornstalks in a field instead of showing the design plus the weave, it is most important to place the lights in the proper position. Remember, the camera records what the photographer sees. Generally, to show weave plus design, the source of light should come from the upper corner of the textile with the light so placed that not too much of it is on that side of the negative.

If possible, a room of 30 or 40 feet in length with a northern exposure should be used to photograph all except the large textiles which may be photographed in the museum gallery. Even the north window should have a draw curtain to close out all light when working with materials which might reflect light.

With the foregoing in mind, let us now consider photographing items which fall into the first category mentioned earlier—Textiles which have no covering of any kind. First of all, the photographer must ascertain exactly what is required in the photograph. Should it show the design of the textile, the weave, or a particular portion of the textile enlarged?

When this has been determined, the photographer proceeds to the matter of lighting. A design will show up best if several lights are placed around the lens and as close to it as possible, as shown in Fig. 2. If the weave is important, side lighting will usually be most effective, though sometimes overhead lighting will produce the best results.

The many textiles which fall into this category vary considerably in size. Some are small enough to fit into the palm of the hand; others may be 30, 40 or 50 feet long, or even longer. Illustrations in Figs. 1-4 show how small textiles are handled, while Figs. 5 and 6 demonstrate how large textiles are photographed.

Some textiles in this category are so fragile that they can only be handled or moved with tweezers, and these are positioned for photographing by a curator. Specimens of this kind are either placed flat on the floor and photographed from directly above, as shown in Fig. 2, or put on a rough-textured board at a 45-degree angle and photographed at the same angle so as to avoid foreshortening in the top part of the photograph. When a slanting board is used, thumb tacks near its base hold the mounting in place. The latter procedure permits much larger textiles to be photographed than would be possible in the vertical position.

The focal length of the lens used will vary with the size of the textile being photographed. In general, a longer focal-length lens will produce a photograph of the proper proportions when a small textile is the subject, and a wide-angle lens will produce the best results in the case of larger textiles.

Let us now turn our attention to the second category—Textiles mounted behind a smooth surface like glass or plexiglass. If a head-on photograph is required, the glossy surface will naturally reflect the camera, the photographer, the lights, and any objects that may be on a side wall near the textile. Fig. 7 graphically illustrates this problem.

The reflections due to direct lighting cannot be eliminated merely by moving the camera to one side of the textile and shooting at an angle. In fact, the reflections actually increase in shooting from the side, as shown in Fig. 9. In this particular case, the textile, about 10½ feet high and 7½ feet wide, and mounted behind glass, was being photographed *in situ,* on an 8-foot landing on a stairway. An extremely wide-angle lens, with quite a rise to the lens board was used. The camera was placed on the stairs. The first exposure, Fig. 9, was made with the regular hall lighting, plus bounced light from a #1 photo flood. While the photograph which resulted looks like a double exposure, it is not. It is just what the camera recorded.

Without moving the camera, the lighting source was changed by turning off both the hall lamp and the bounced light from the photo flood. Two photo floods were placed, one to the right and one to the left side of the textile to give even lighting. These lamps were posi-

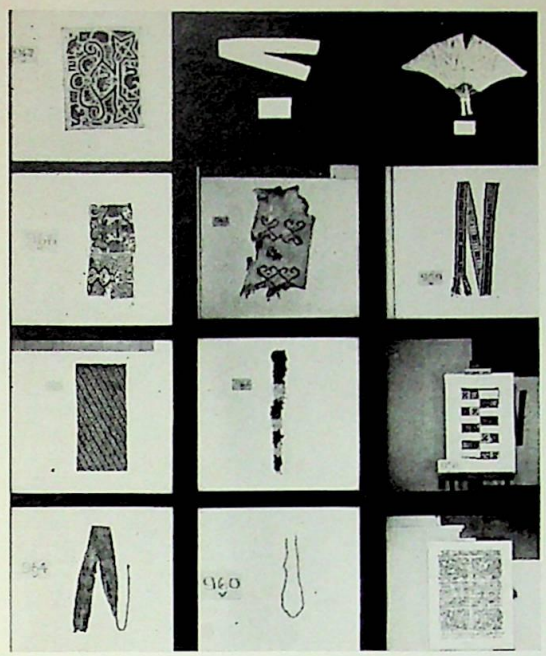

Fig. 1—

Photographs of small textiles from the museum collection. Note that a black background was used in photographing white textiles, while a monk's cloth background was used for all other specimens.

Fig. 3—

Fragile textiles like this often require the feminine touch. Here, a curator and a recorder prepare the textile for photographing. Note that the negative number is permanently recorded in the photograph.

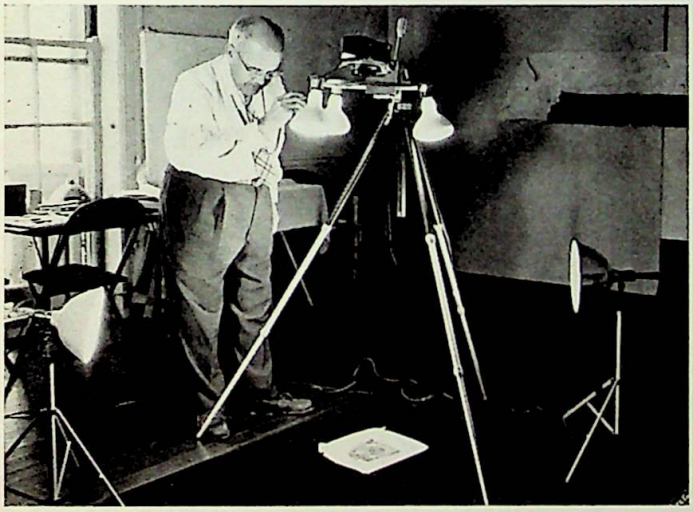

Fig. 2—

Small textiles are sometimes placed flat on the floor and photographed from directly above, as shown here. In this instance, the photograph was taken with a 2¼" x 2¼" roll-film camera using a long focal-length lens, with even lighting around the lens.

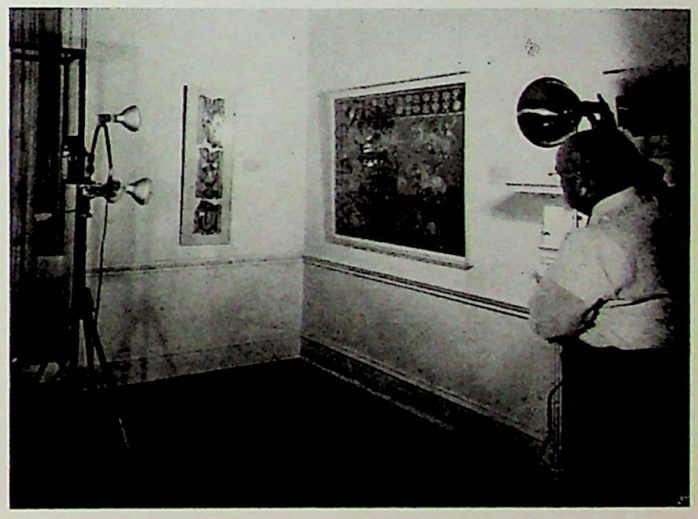

Fig. 4—

Position of the camera and lighting used in making the photograph shown in Fig. 12 are shown here. Note that the photo floods around the camera have been turned off.

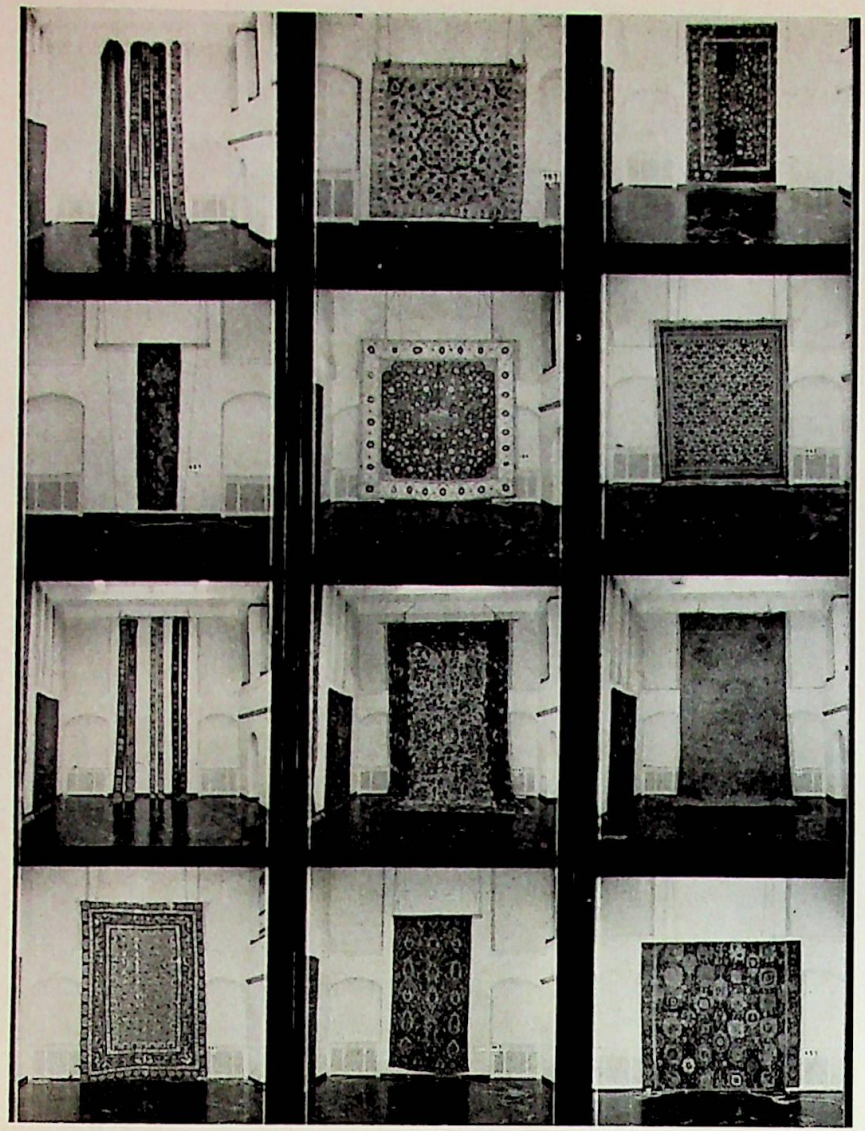

Fig. 5—

Rugs and textiles like these, too large to shoot in the studio, were photographed in the museum itself. The photograph was taken with a camera with a wide-angle lens and a tripod, which extended to a considerable height. In addition, a step ladder was used for easy focusing and for leveling the camera to keep the side lines in the photograph straight. When the specimen had no rings for hanging, it was covered with a strip of clear plastic and clamped to the back board. Care must be exercised to keep lights used in making the photograph from being reflected in the plastic.

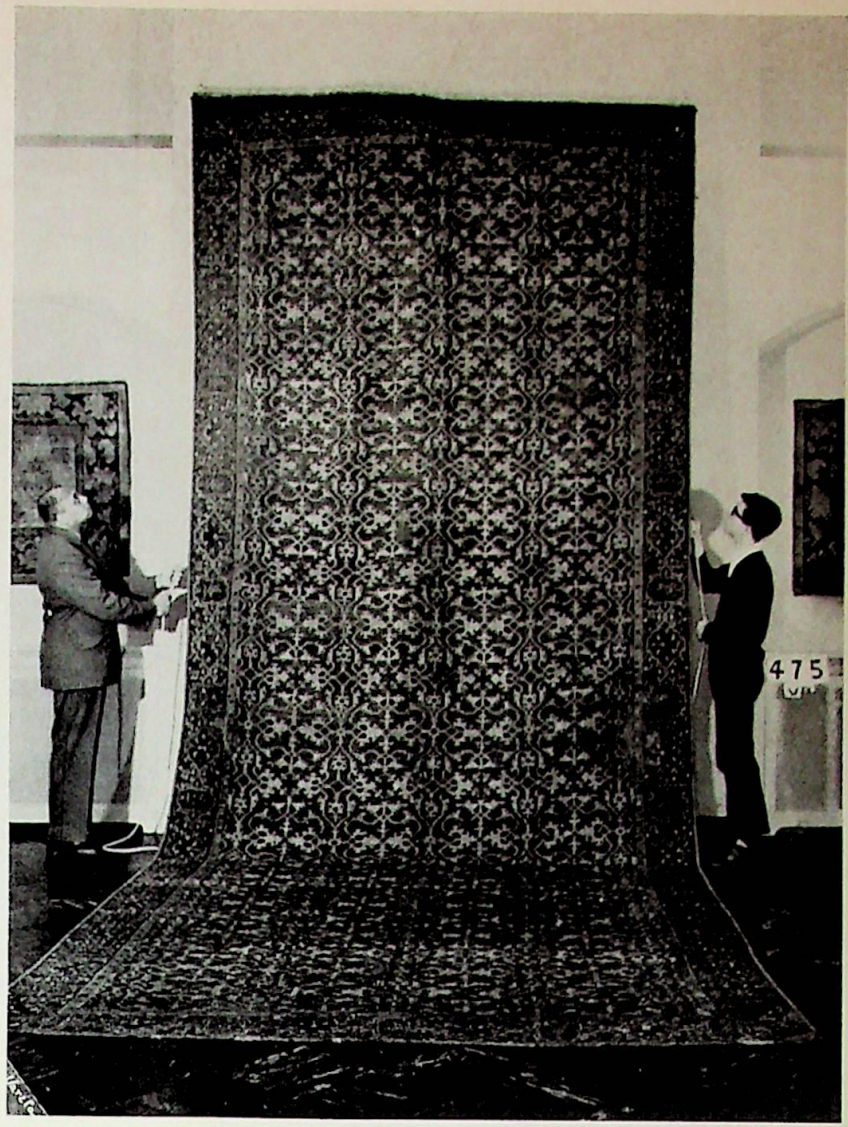

Fig. 6—

In photographing large rugs, assistants come in handy, not only to keep records, but also to help roll, hang, adjust, and re-roll the specimens. As the rugs are lifted into position by means of pulleys, the photographer can guide his assistants in keeping the rug aligned properly for photographing. Note the negative number on the right side of the photograph. Lights of the museum were used and proved satisfactory.

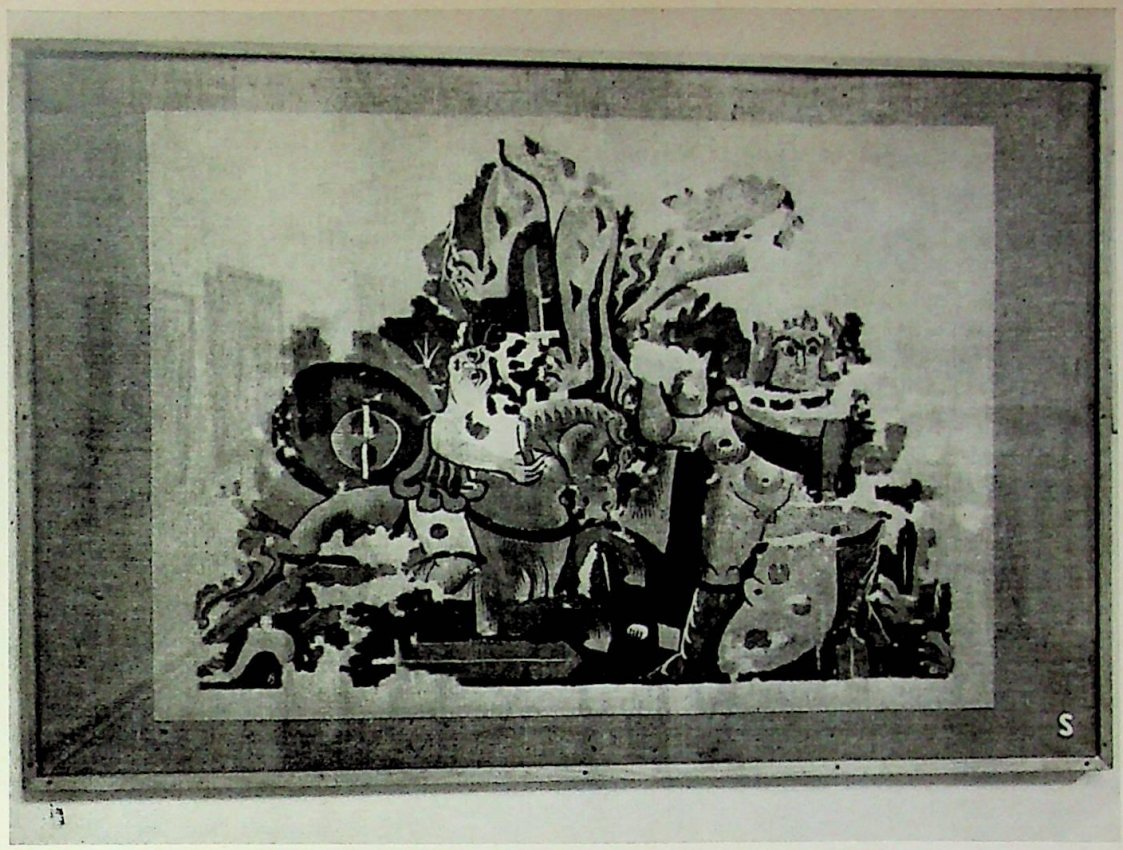

Fig. 7—
First exposure of T. M. 71.90, mounted under plexiglas, was made using normal museum lighting. Note the reflection of side wall hangings, as well as other reflections.

Fig. 8—
A second exposure of the same specimen was made when the museum lights were turned off. This time the photograph was taken using one side light. This not only eliminated the reflections but also brought out the weave.

Fig. 9—

First exposure of T. M. 71.118, mounted under glass on stair landing. The textile is mounted on dark red cloth and is lit only by a hanging lamp. Reflected railing supports are white. This exposure was made with the lamp on, using a bounce #1 photo flood, on 4 x 5" cut film with a 6.5-m wide-angle lens with a rise-front board to keep the lines straight. The man who seems to be looking over the railing was actually looking at the textile.

Fig 10—

A second exposure of the same textile. This photograph was taken without moving the camera, but with the lights shifted and the railing covered by a black cloth. The photograph provides a graphic example of the importance of proper lighting. Overhead light and bounced light were turned off and two photo floods, one on each side of the textile, were placed so as to create the least amount of high or reflected lights.

tioned as near the edge of the textile as possible to give even lighting but limited reflections. Another exposure was made. The resulting photograph is shown in Fig. 10 and clearly demonstrates how important lighting can be in shooting subjects of this kind. The landing on which this textile is exhibited is quite small, so there are some over-exposed portions of the negative in the photograph. However, these could have been eliminated had there been more room to the side of the textile. A black cloth was used in the second exposure to eliminate the reflection of the white railing clearly visible in Fig. 9.

Despite the difficulties, side lighting will usually be more effective than direct lighting when photographing textiles mounted behind a reflective material. Light sources will have to be moved around considerably in order to make sure that the lighting is just right for the subject. Only when the lighting is perfect should the photograph be taken.

The problems involved in photographing the textile shown in Figs. 9 and 10 help point up the fact that, no matter how fine a single 35mm or 2¼ x 2¼" camera with a stationary lens may be, it will not meet all the requirements for photographing the textiles in a museum collection. If a camera of this kind is pointed up to cover the textile, the textile will appear to be falling backward in the photograph. In such cases, a commercial camera with a wide-angle lens and an extreme rise to the front board is required.

Photographing the third category of textiles —Textiles mounted under cellophane or a similar material, poses still different problems. While the cellophane provides a good protective covering for the textile, it is affected by both heat and cold, and has a tendency to buckle or warp, producing a wavy, crinkled surface. While the museum visitor can move around to several different locations in order to see the textile clearly, the camera's job is more difficult, since it cannot, in one exposure, move around as a person does.

Here again lighting is all-important, and lights will have to be moved about until the correct lighting pattern is established. This is demonstrated in Figs. 11 and 12. Sometimes two lights may be required; at times one light may be sufficient. On occasion, it may be necessary to drape a black cloth around the camera to eliminate reflections of the camera or tripod. The photograph in Fig. 10 was made in this manner.

In photographing textiles mounted under either plexiglass or cellophane, the photographer must also be careful to see that he is not reflected in the surface. Dark clothing helps to hold down such reflections. In addition, hands, faces and bald heads must be kept out of range of the lens. This can be done by ducking down below the reflecting surface or taking the photograph from the side.

One other special category of textiles should be mentioned briefly, and that is textiles mounted on cellophane or plastics. Here again special problems exist and proper lighting is essential. What can be accomplished by moving lights around until they are in the proper position is shown in Figs. 13 and 14.

There is, of course, no set group of formulas applicable to all situations. The photographer must stand ready to adapt situations to each new problem. Two typical situations arising at the Textile Museum will illustrate this point. Fig. 15 shows a portion of an exhibition in the museum gallery. A special 4 x 5" camera described in the article was employed. A Schneider Angulon F 6:8—90mm lens was used stopped down to F .32. The camera was mounted on a tripod which was extended to seven feet. The front board was raised to its fullest capacity. Plate cameras allow ground glass focusing which is so important in making photographs like this one. The ground glass allows the photographer to see that the vertical lines are kept vertical. The museum lights which are fluorescent tubes mounted in the ceiling behind frosted glass gave a very even lighting and were the only source of light used for this photograph. Slow lenses such as F 6:8 stopped down cover larger plate areas and will give detail to the corners of the negative. Fast lenses from the F 4:5 to the F .2 group do not have this quality but tend to give a soft negative when stopped down to F .22 or F .32.

Another typical problem encountered in a different type of photographically recording museum installation is shown in Fig. 16. This photograph also required a wide-angle lens since the distance from the camera to the area to be photographed was limited. The same camera and lens that made the picture for Fig. 15 was used. However, here three sources of

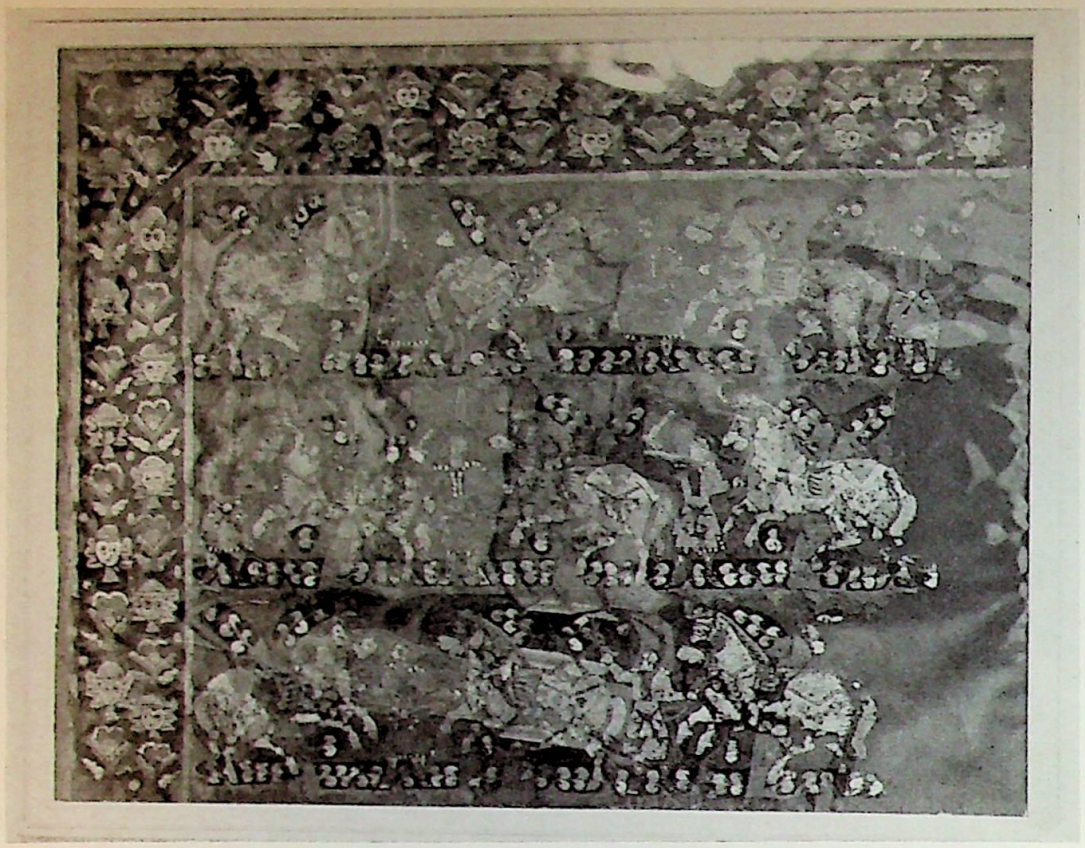

Fig. 11—
First exposure of a textile mounted under cellophane. Buckling of the cellophane makes photographs of this kind most difficult to take. This exposure shows what the camera saw using the museum light.

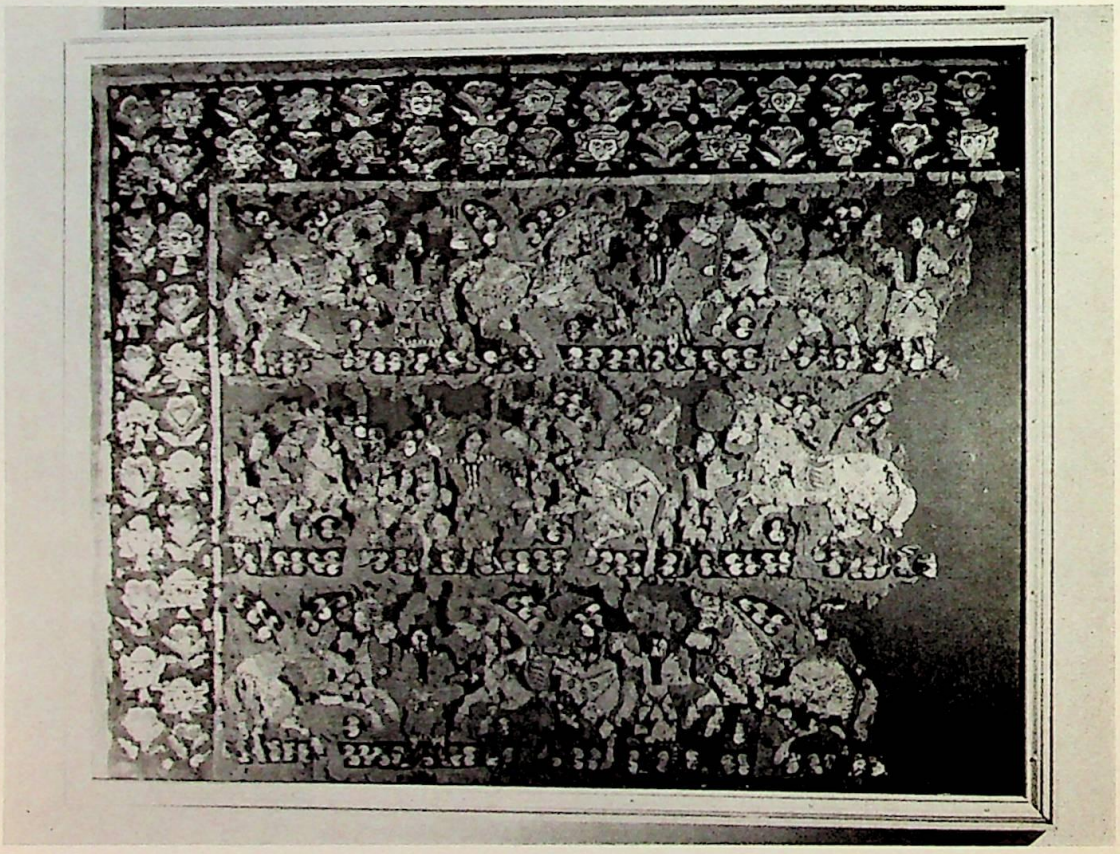

Fig. 12—
Second exposure of the same specimen. This photograph shows how much can be done by finding the proper lighting and eliminating overhead lights. Patience is needed to obtain the lighting effect which will bring out the design and weave eliminating reflections. Fig. 4 shows how this textile was lighted.

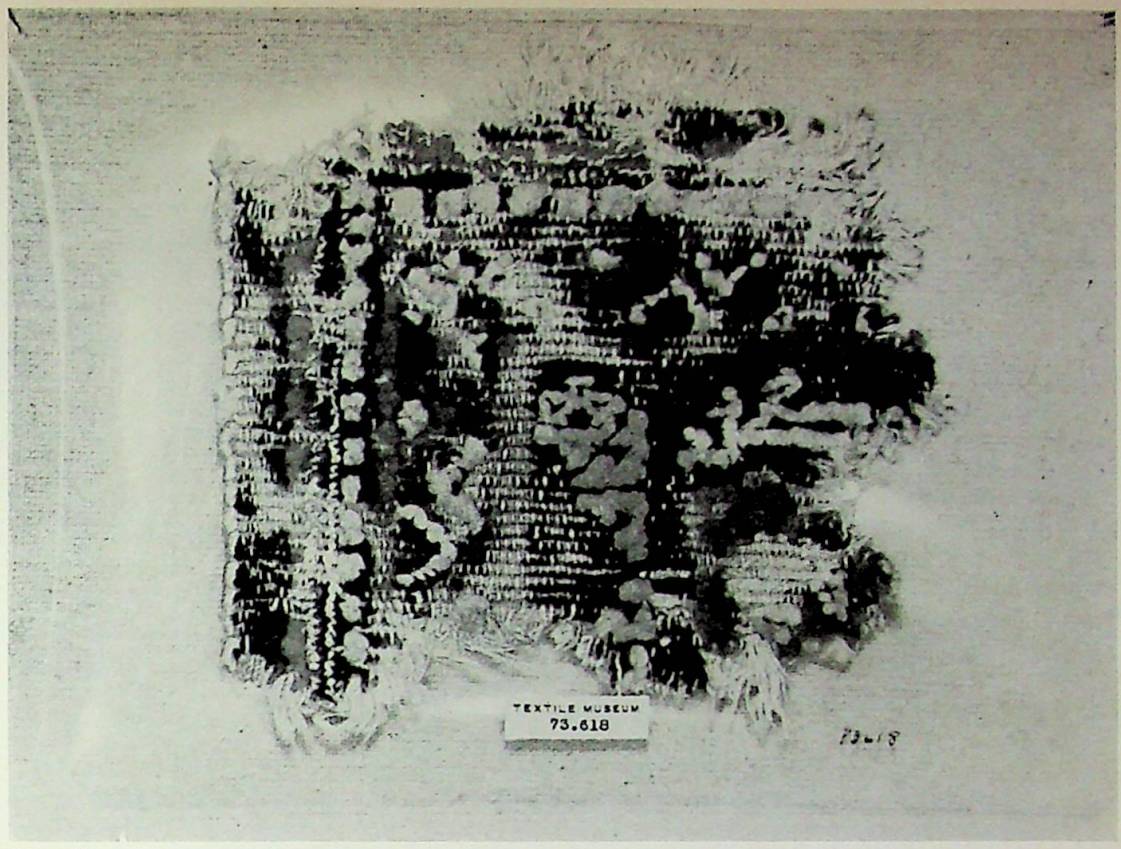

Fig. 13—
First exposure of a textile mounted on a plastic background. In this exposure, direct lighting produced objectionable hightlights and failed to bring up details in the weave and design.

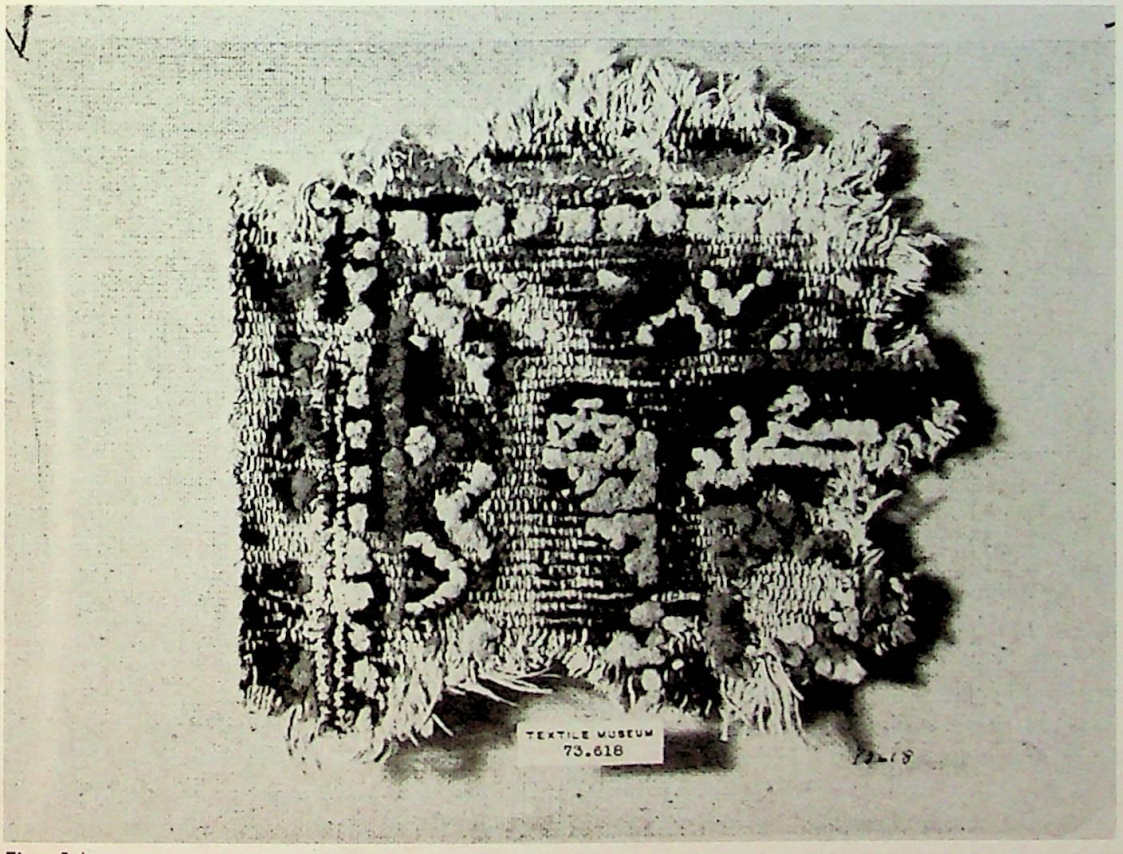

Fig. 14—
Second exposure of the same textile. With the light source shifted to the left side and the camera in the same position, objectionable highlights are gone and the weave and design details are clearly visible. Highlight on the curved plastic on the left does not interfere with study of the textile itself.

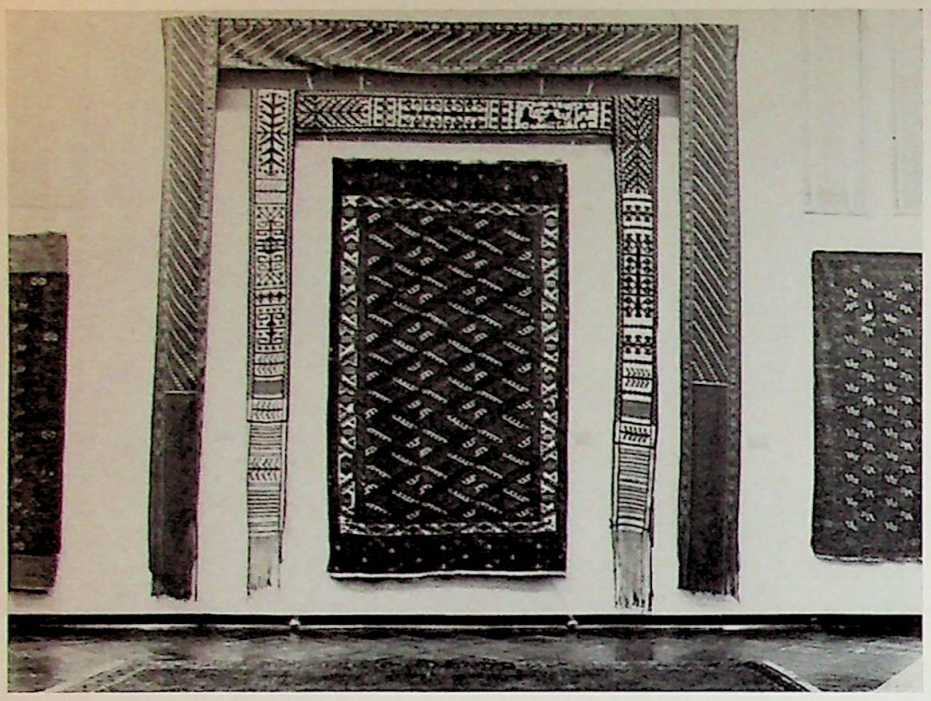

Fig. 15 Photograph of a portion of a museum rug exhibition

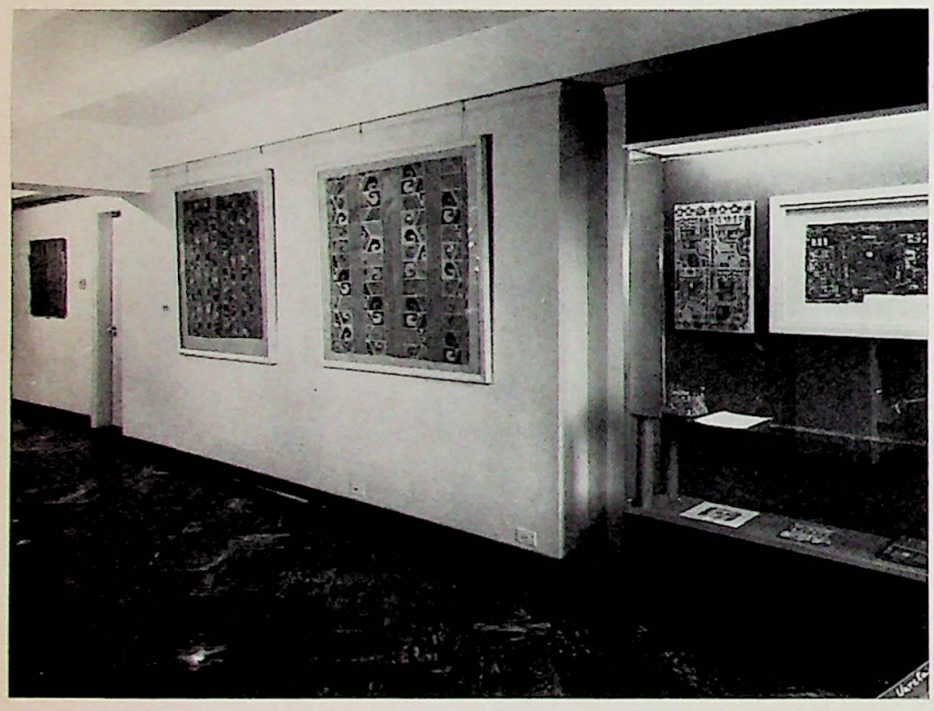

Fig. 16 Photographic record of a permanent textile exhibition

light were employed. The lights in the museum were turned off as they caused reflections. On the right, the fluorescent tubes behind ground glass furnished lighting for the textiles in the cabinet. With this as a stationary source of light, the rest of the lights had to be balanced to these. The center textiles were mounted behind cellophane which had warped and presented a major problem. After moving the 150 watt bulb in a reflector to all angles, the high lights caused by the cellophane were eliminated, except for the few spots shown, by bouncing the light source off the textile. The third section of the photograph was lighted by also bouncing a 150 watt bulb in a reflector off the ceiling. This was no problem of reflections here as the textile was not mounted behind a reflecting surface. This source of light had to be measured to agree with the other two sources. If a light had not been placed at the extreme left, that portion of the picture would have been very dark. This is a perfect example of how lights must be moved around before photographs of textiles are taken. Again, one of the photographer's most important tools is his exposure meter. In the photograph, light was measured in front of the cabinet, in front of the two textiles and in front of the textile on the left. Only with a meter could the lights of the cabinet, which were stationary, be measured to the bounced lights that covered the textiles. The human eye cannot measure light for photographic film.

A final word may be in order about the numbering of photographs. Our experience indicates that placing a number alongside the textile to be photographed is better than numbering the negative after development. When this method is used, a record can be kept of the textile number along with the negative number when the photograph is taken. After development, the 2¼ x 2¼″ roll film is cut into three equal parts of four 2¼ x 2¼″ negatives. These are placed in transparent sleeves marked to correspond with the negative number. Duplicate 8 x 10″ prints are then made of twelve negatives with the numbers showing beside each textile. Negatives are filed by negative number; the 8 x 10″ prints are filed in albums; and a trimmed contact print is mounted on each record card under the number of the textile.

If this article has been of interest, more information is available from the author on many details which are not covered here. To list all the cameras, lenses, developers and so on, would bore you, so we have tried to be brief. Names of films, developers, papers and other materials can be obtained from the author.